and adverse event investigations (14.6%). Foremost cited products were bevacizumab and sorafenib. Sponsorship was independent (43.4%), not reported (28.7%), industry (6.6%), or inaccessible at time of assessment (21.3%). Many SLRs were from China. **CONCLUSIONS:** In our analysis, PLoS ONE published the most SLRs. Journals offering open access are attracting a growing number of SLRs and many boast a diverse readership. A significant body of work is emerging from China where, as in the rest of the world, the majority of SLRs appear to be independently sponsored. SLRs are valued by clinical, payer, and regulatory decision-makers, since they provide a convenient synthesis of available evidence to address knowledge gaps and facilitate translation of research into practice.

PHP61

DISPENSING OF VITAMIN PRODUCTS BY RETAIL PHARMACIES IN SOUTH AFRICA

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OBJECTIVES: Few studies have been conducted on vitamin dispensing patterns in retail pharmacies in South Africa. The aim of this study was to analyse the dispensing patterns of vitamins (ATC group A11) over a one year period in a group of community pharmacies in South Africa. **METHODS:** A retrospective drug utilisation study was conducted on community pharmacy electronic dispensing records in South Africa for 2013. All products in ATC subgroup A11 were extracted and analysed. **RESULTS:** A total of 164 233 vitamin products were dispensed to 84 805 patients. Most patients were females (62.64%) and most of the vitamin products (59.62%) were dispensed to females. Males received on average 2.09 (SD=2.63) vitamin products per year, compared to 1.84 (SD=2.13) products for females. Ergocalciferol (A11CC01) was the most often dispensed (37.48% of all vitamin products), followed by plain Vitamin B-complex products (A11EA00) accounting for 32.77%. Ergocalciferol is only available on prescription in South Africa (50 000 IU tablets or 50 000 IU/ml oily drops). The tablets are relatively inexpensive (approximately R2.50 per tablet). Of all the dosage formulations, tablets were preferred (62.84% of all vitamin products). Most injections were for Vitamin B1 or Vitamin B combination products. Vitamin B injections have recently been rescheduled in South Africa to prescription-only products and consumers therefore no longer can buy these products from a pharmacy or ask the pharmacist to administer a Vitamin B injection without a prescription. The number of vitamin products dispensed increased steadily over the year. **CONCLUSIONS:** Vitamins are important in treating nutritional deficiencies, yet few studies on vitamins have been conducted in pharmacies. It is expected that the change in the over-the-counter availability of Vitamin B injections in South Africa will impact on their dispensing and usage patterns. It will be important to monitor the effect that this change in prescribing status will have on vitamin sales in pharmacies.

PHP62

BIOSIMILAR SUBSTITUTION POLICIES: AN OVERVIEW

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OBJECTIVES: Substitution has been implemented for generics in most markets and very often resulted in high uptake correlated with fast and strong price erosion. Although biosimilars and generics are different, the low biosimilar penetration in most of Europe prompted some countries to discuss the implementation of substitution for biosimilars as an initiative to quickly reduce healthcare spending by boosting their uptake. The objective of this study was to identify initiatives undertaken worldwide with regards to biosimilar substitution and their potential implications. **METHODS:** A literature review was conducted from European and national health authorities' websites, Generics and Biosimilars Initiative website, Medline® database, and available grey literature. **RESULTS:** In Europe, European Medicines Agency leaves substitution responsibility to national regulators. Sixteen EU Member States have either law or guidelines prohibiting automatic biosimilar substitution. In 2013, France became the first European country to pass a law for biosimilar substitution. In 2014, Norwegian government set up a clinical study to assess interchangeability of Remicade® (infliximab) and its biosimilar. In the United-States, the Food and Drug Administration has the authority to designate a biosimilar as interchangeable but substitution is then regulated at state level. Thirty one states have currently considered legislation establishing standards for biosimilar substitution. In Canada, interchangeability remains a provincial decision. So far, one province positioned against substitution. The Pharmaceutical Benefits Advisory Committee in Australia recently considered marking biosimilar as equivalent to reference product, which would allow substitution at pharmacy level. In South Korea, Japan and South Africa automatic substitution is prohibited at pharmacy level. **CONCLUSIONS:** In most countries, the choice of treatment with a reference biologic or with a biosimilar remains a clinical decision entrusted to the prescribing physician. Enhancing substitution may increase the penetration of biosimilars which constitutes an additional therapeutic option available to practitioners.

PHP63

MULTIPLE USE OF ANTIBIOTIC IN POST OPERATIVE PATIENTS IN TERTIARY CARE HOSPITAL OF QUETTA, PAKISTAN

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OBJECTIVES: Present study is conducted to determine the trend and use of antibiotics among the post-operative patients of tertiary care hospital. **METHODS:** The present study was designed as retrospective study. The data was obtained from the records of tertiary care hospital (Bolan Medical complex Hospital). The data was gathered randomly from the record for the period between July to October, 2015. Information regarding antibiotic use along patient related data was obtained. The collected data was reviewed, coded, verified and statistically analyzed using SPSS. **RESULTS:** Data from the patients, who has been prescribed antibiotic after surgery was obtained. a total of 325 records were include in the study. Appendicitis was most common cause of admission (N= 124, 40.6%). Most of the patients (N= 209, 68.5%) hospitalized for maximum of 4 days in hospitals after surgery. Most commonly prescribed antibiotics were Ceftriaxone, Metronidazole and Gentamicin. Cases of multiple antibiotic in treatment were high, in which triple antibiotics containing treatments were leading (N=220, 72%) followed by double antibiotics containing treatments (N= 85, 28%). **CONCLUSIONS:** The study revealed that there was high number of antibiotics prescribed to the post operative patients irrationally, as there is no evidence for the prescription of these antibiotics. Antibiotics are prescribed in multiple forms. There is strong need of a local Guidelines to be established for use of antibiotics rationally.

HEALTH CARE USE & POLICY STUDIES – Equity and Access

PHP64

ASSESSING EQUITY OF HEALTH SERVICE UTILIZATION OF RURAL RESIDENTS IN CHINA: A CASE STUDY OF Z COUNTY, SHAANXI PROVINCE

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OBJECTIVES: China is far behind the international standard in health equity. The main purpose of this paper is to evaluate the equity of health services utilization of rural residents in western China and analyze its influencing factors, thus raising policy suggestions to improve the equity of health system. **METHODS:** Related data on health services utilization of rural residents were collected through random-sampling household surveys. Based on the standardized variable of Health Need, the parallel equity of rural residents' health service utilization is assessed by calculating Concentration Index (CI) and mean-value and difference testing among residents of different income levels, while the vertical equity is evaluated by calculating Index of Dissimilarity (ID) among residents of different ages. Besides, Two-step Model is adapted to analyze its influencing factors. **RESULTS:** On outpatient service utilization, Standard CI of two-week outpatient visiting rate, two-week outpatient visiting times and outpatient expenditure are 0.1048, 0.1213 and 0.5178 respectively, while ID of the three indexes mentioned above are 0.054719, 0.056134 and 0.011823 respectively (P<0.05). On inpatient service utilization, Standard CI of annual hospitalization rate, annual hospitalization times, days of hospitalization, inpatient expenditure and its compensation level are 0.07914, 0.0543, -0.098, 0.3012 and 0.1740 respectively, while ID of the five indexes mentioned above are 0.053098, 0.06122, 0.308912, 0.316444 and 0.379235 respectively (P<0.05). Health status, financial ability, educational level and marital status have significant influence on health service utilization equity. **CONCLUSIONS:** Parallel inequity of health service utilization of rural residents of different income levels exits in outpatient expenditure, inpatient expenditure and its compensation level, while vertical inequity of rural residents of different ages exits in days of hospitalization, inpatient expenditure and its compensation level. Comprehensive measures should be considered to alleviate the inequity of health service utilization in rural residents who live alone, come from less well-off families and have poorer health, lower educational levels.

PHP65

ASSESSING EQUITY OF HEALTH SERVICE UTILIZATION OF URBAN RESIDENTS IN CHINA: A CASE STUDY OF B CITY, SHAANXI PROVINCE

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OBJECTIVES: Data on health services utilization of urban residents collected through random-sampling household surveys are analyzed to access the equity of health service utilization of urban residents in western China. **METHODS:** Variable of Health Need of urban residents is standardized through Logistic Model, Negative Binomial Model and Possion Model. Residents are divided into 5 groups by per capita annual income in families, and parallel equity of health service utilization is assessed by calculating Concentration Index (CI) and mean-value and difference testing among residents of different income levels. While residents are divided into 8 groups by ages, and vertical equity is evaluated by calculating Index of Dissimilarity (ID) among residents of different ages. **RESULTS:** On outpatient service utilization, Standard CI of two-week outpatient visiting rate, two-week outpatient visiting times, outpatient expenditure and its compensation level are -0.0040, -0.0115, 0.0244, 0.2356 respectively, while ID of the four indexes mentioned above are 0.2709 (P<0.05), 0.3285 (P<0.05), 0.3434 (P<0.05), 0.3785 (P=0.5489) respectively. On inpatient service utilization, Standard CI of annual hospitalization rate, annual hospitalization times, days of hospitalization, inpatient expenditure and its compensation level are 0.1110, 0.0200, 0.0260, 0.0336 and 0.1449 respectively, while ID of the five indexes mentioned above are 0.3139, 0.3408, 0.3814, 0.4397, 0.4691 respectively (P<0.05). **CONCLUSIONS:** Equity of outpatient service utilization is poor in that urban residents with low-income or over the age of 65 get fewer outpatient compensation fees, while equity of hospitalization service utilization is weak in that low-income urban residents use fewer hospitalization services and get less hospitalization compensation fees, and that urban residents over the age of 65, who is in most health service demand, can neither get the most hospitalization services nor receive a higher proportion of hospitalization compensation. Comprehensive measures should be taken to improve the equity of health service utilization in urban residents who are old-aged or come from less well-off families.

PHP66

THE INTERTEMPORAL CHANGES OF HEALTH SERVICES UTILIZATION DURING THE LAST DECADE: THE CASE OF AUSTERITY INFLICTED ON GREECE

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OBJECTIVES: The factors which determine health services utilization (HSU) and access to health services are at the epicentre of health policy discussions, in an

attempt to identify barriers to access. This study aims to investigate the factors that act as determinants of HSU for the Greek population, as well as highlight their evolution since 2006. **METHODS:** The study was based on data collected by three cross-sectional health interview surveys conducted by the National School of Public Health, Athens, Greece, in 2006, 2011 and 2015 with representative national samples of 4003, 6569 and 2012 adults respectively. Respondents were asked to answer a series of questions on HSU and report their demographic characteristics. **RESULTS:** A significant decrease in the basic measures of HSU between 2006 and 2015 was detected. In 2006, 74.6% of respondents answered that they had used a health service in the last 12 months, whereas in 2015 the corresponding figure was only 46.5%. There was a statistically significant association between HSU and gender of respondents, with females utilizing the services at a considerably higher rate (52.9%) than men (38.6%). The degree of non utilization health services was not changed substantially in these surveys, however the reasons for not using the services were found to change and brought up statistically significant associations with age, income and occupation of respondents. It is noteworthy that the percentage of population unable to access healthcare due to inability to pay was 5.9%, 8.5% and 27.4% in 2006, 2011 and 2015 respectively. **CONCLUSIONS:** It is evident that demographic and socioeconomic determinants influence the HSU. The findings highlight the problem of social inequalities as a major issue of health policy.

PHP67

ASSESSING JAPAN'S THREE EARLY ACCESS PROGRAMS BASED ON RECENT DISCUSSIONS: SCOPE AND FINANCIAL AID

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OBJECTIVES: Access to medicines is usually given under the regulatory approvals and subsequent coverage decisions, after efficacy and safety have been proven by clinical trials. Recently, systems to enable exceptional early access have been explored to meet significant, unmet, and urgent medical needs for frontier medicines. In Japan, the Advanced Medical Care B system (AMCB) is already in operation. Two other systems, the Compassionate Use system (CU) and the Patient-Initiated Mixed-Care system (PIMC), are planned to start. The objective of this study is to understand the design and institutional positioning of these three systems, identifying opportunities for further improvements. **METHODS:** A documentary research was conducted by analyzing government documents and the Diet Record. **RESULTS:** For the AMCB system, the review board designates technologies that include the use of unapproved medicines or off-label indications, after requests from health care professionals. The CU system is to be fully introduced in 2015 and targets medicines at later stages of clinical development, opening up opportunities for patients who are not eligible for the trials. The PIMC system is to start in 2016 and focused on medicines or patients that are not covered by the other two systems. The three systems have no legal financial aid programs to cover the costs of experimental medicines, while the systems allow coverage of other treatment costs than those medicines. Details of the CU and PIMC systems are currently under discussion. **CONCLUSIONS:** The scopes of the three systems were found to be complementary to one another, covering both unapproved medicines and patients excluded from clinical studies. Legal financial aid would be worth considering for more equitable and extensive early access.

PHP68

DOES CHINA'S NEW MEDICAL REFORM IMPROVE HEALTH EQUITY OF RURAL RESIDENTS? EVIDENCE FROM HOUSEHOLD SURVEYS BEFORE AND AFTER THE IMPLEMENTATION OF NEW MEDICAL REFORM IN SHAANXI PROVINCE, CHINA

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OBJECTIVES: China's New Medical Reform (NMR), which started in 2009, aims at improving the equity of basic health service, especially in the less well-off areas. The purpose of this study is to know whether the popularity of NMR has alleviate the existing health inequity in rural West China by comparing indicators of health equity of rural residents covered by New Rural Cooperative Medical System (NRCMS) before and after China's NMR. **METHODS:** Related data have been collected respectively from 2860 and 2432 rural residents through random-sampling household questionnaire survey in Z County, Shaanxi, China, in November 2009 (before NMR) and October 2012 (after NMR). The sample residents are divided into 5 groups by per capita annual income in families, and equity of health need, utilization and benefit have been calculated through Concentration Index (CI) and ANOVA. **RESULTS:** On equity of health need, CIs for two-week morbidity and half-year prevalence rate of chronic diseases among rural residents of different income levels in 2009 and 2012 are -0.0524, -0.0536 and -0.0792, -0.0840 respectively. On equity of health service utilization, CIs for treatment of two-week morbidity in 2009 and 2012 are -0.0096 and -0.0992 respectively; CIs for hospitalization and non-hospitalization of residents are 0.0032, -0.1712 and -0.0396, -0.1548 respectively. On benefit equity, CIs for hospitalization rate of residents in 2009 and 2012 are -0.0208 and -0.0712 respectively; CIs for average compensation of hospitalization are -0.0212 and -0.1620 respectively. Difference in economic burden caused by diseases among residents of different income levels is non-significant after the implementation of NMR ($P>0.05$). **CONCLUSIONS:** NMR has improved the equity of health service need of rural residents to some extent while reduced the utilization equity little. Benefit equity is enhanced since low-income residents benefit more than high-income counterparts from in-patient health service. Rural residents' economic burden caused by diseases has reduced significantly after NMR.

PHP69

ALL QALYS ARE EQUAL, BUT SOME QALYS ARE MORE EQUAL THAN OTHERS; A COMPARISON OF THE NICE END OF LIFE CRITERIA AND SMC PACE PROCESS

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OBJECTIVES: Within the National Institute for Health and Care Excellence (NICE) Appraisal process, quality adjusted life years (QALYs) are regarded as having equal weighting. However, in January 2009, NICE introduced the end-of-life (EOL) criteria, giving more weight to QALYs for life-extending, and EOL interventions. In May 2014, the Scottish Medicines Consortium (SMC) introduced the Patient and Clinician Engagement (PACE) process for evaluating EOL medicines and medicines used to treat very rare conditions, to allow a more flexible approach to considering such medicines. These two initiatives allow a greater cost per QALY gained willingness-to-pay threshold than usual in the United Kingdom (UK), however there are differences in their requirements and outcomes. The aim of this study was to compare the process and conclusions drawn by NICE and the SMC for health technology appraisal submissions either meeting NICE EOL criteria after May 2014, or being accepted into the PACE process based on EOL. **METHODS:** All technologies reviewed under the PACE process, NICE EOL criteria or both were identified. Information collected included whether EOL criteria were met, incremental cost effectiveness ratio (ICER) and SMC and NICE decisions. **RESULTS:** In total, 15 technologies were reviewed. Of the 15, 14 were reviewed under PACE; 8 were given positive SMC Advice, 3 were given restricted positive SMC Advice and 3 were given negative SMC Advice. Of the 14 technologies reviewed under the PACE process, 7 were reviewed by NICE, 4 met EOL criteria, 2 of which were given positive NICE Guidance. **CONCLUSIONS:** Of those technologies considered by both NICE and SMC since May 2014, fewer met the NICE EOL criteria than the PACE EOL criteria, and fewer still received positive NICE Guidance. There are differences in access to interventions for diseases with short life expectancies within the UK, although further research into the changing Cancer Drugs Fund is needed.

PHP70

CAUSES AND COST IMPACT OF VARIABILITIES ON THE A&E WARD UTILIZATION ACROSS HOSPITALS IN SPAIN

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OBJECTIVES: To analyse the causes and financial implications of the variability of use of A&E resources (visits, admissions) across Spanish Hospitals and Regions **METHODS:** Review of the Configuration Management DataBase Set (CMDB) and Hospital Discharge Statistics during the period 2010-2012, using a multivariate analyses controlling for factors like: region, sex, age, income, etc. to explain the relative rate to average and variations within and between regions. **RESULTS:** There is a significant variation between and within regions and hospitals, which is mostly explained by personal income, distance to hospitals, availability of alternatives in Primary Care, and, quite interestingly ($p<0.05$ within Hospitals of same regions), size of hospital measured in terms of available beds. This impacts on the resource allocation, new hospitals to be erected -new investments- and cost per patient. **CONCLUSIONS:** Variability of A&E resource utilisation (frequency of visits, hospitalizations) is greatly explained using a multidimensional approach within and betwen regions, having more than 80% explanative variables laying into Personal Income, Distance to Hospital, Available Beds, and Primary Care Ambulatory alternatives. Other variables were not deemed to be significant.

PHP71

DIFFERENTIAL PRICING FOR PHARMACEUTICALS: OVERVIEW OF A WIDELY DEBATED PRICING CONCEPT AND KEY CHALLENGES

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OBJECTIVES: Differential pricing (DPR) is based on the economic concept of price discrimination. DPR is reported as a potential effective way to: (1) Improve access to medicines in lower income countries whilst maintaining welfare in higher income countries; (2) Preserve incentives for R&D through higher prices in high income countries. This study aimed to assess the current situation of DPR for pharmaceuticals in the European Union (EU). **METHODS:** A literature review was conducted in MEDLINE®, WHO, OECD, and EU Commission websites, complemented by a grey literature search. Key DPR principles were identified and current implementation challenges in the EU were assessed. **RESULTS:** Ramsey (1927) developed a well-known DPR theory stating that prices should differ across markets according to inverse relation to demand elasticity, with more price-sensitive users, (i.e. lower income countries) charged at a lower price than less-price sensitive users. Another approach to DPR proposed by Danzon et al. (2013), called "value-based differential pricing", would be to have prices reflecting utilization in each country. DPR is highly discussed among national/EU institutions and industry given the differences in GDP per capita and price levels of EU countries. However, several challenges were reported to limit DPR implementation: (1) DPR scheme is based on average per capita income; (2) Manufacturers attempt to apply higher price in low income markets and lower price in high income markets; (3) Differential distribution margins; (5) Risk of parallel trade; (6) Use of external reference pricing (ERP) where prices and undisclosed rebates in high income countries drive high prices in lower income countries. **CONCLUSIONS:** DPR is widely debated to enhance access to innovative expensive medicines in the low income market. However, DPR optimization requires wide coordination and interaction, between the countries and the industry to minimize various counteracting policies and initiatives.

PHP72

INVESTIGATING THE ACCESSIBILITY OF UNINSURED POPULATION TO HEALTH SERVICES IN GREECE

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OBJECTIVES: One of the most significant effects of economic crisis in Greece is the rising number of unemployed and uninsured citizens. A large percentage of the